

**SECTION 1135 ENVIRONMENTAL RESTORATION  
PEANUT ISLAND RESTORATION  
1135 REPORT**

**INTRODUCTION**

**1. STUDY AUTHORITY**

This report is submitted under the authority of Section 1135, Water Resources Development Act (WRDA) OF 1986, as amended. The act reads, in part, as follows:

*The Secretary is authorized to carry out a program for the purpose of making such modifications in the structures and operations of water resources projects constructed by the Secretary which the Secretary determines (1) are feasible and consistent with the authorized project purposes, and (2) will improve the quality of the environment in the public interest.*

**2. STUDY PURPOSE AND SCOPE**

Peanut Island was created in 1918 as a result of material excavated from creation of the Lake Worth Inlet. Since 1934, the U.S. Army Corps of Engineers (Corps) has maintained the Palm Beach Harbor Navigation Project, using the island as a deposition site for material dredged from Lake Worth Inlet and the Atlantic Intracoastal Waterway (IWW). As a result of the numerous dredging efforts, a 79-acre island was formed and subsequently colonized with exotic vegetation, primarily Australian pine (*Casuarina equisetifolia*).

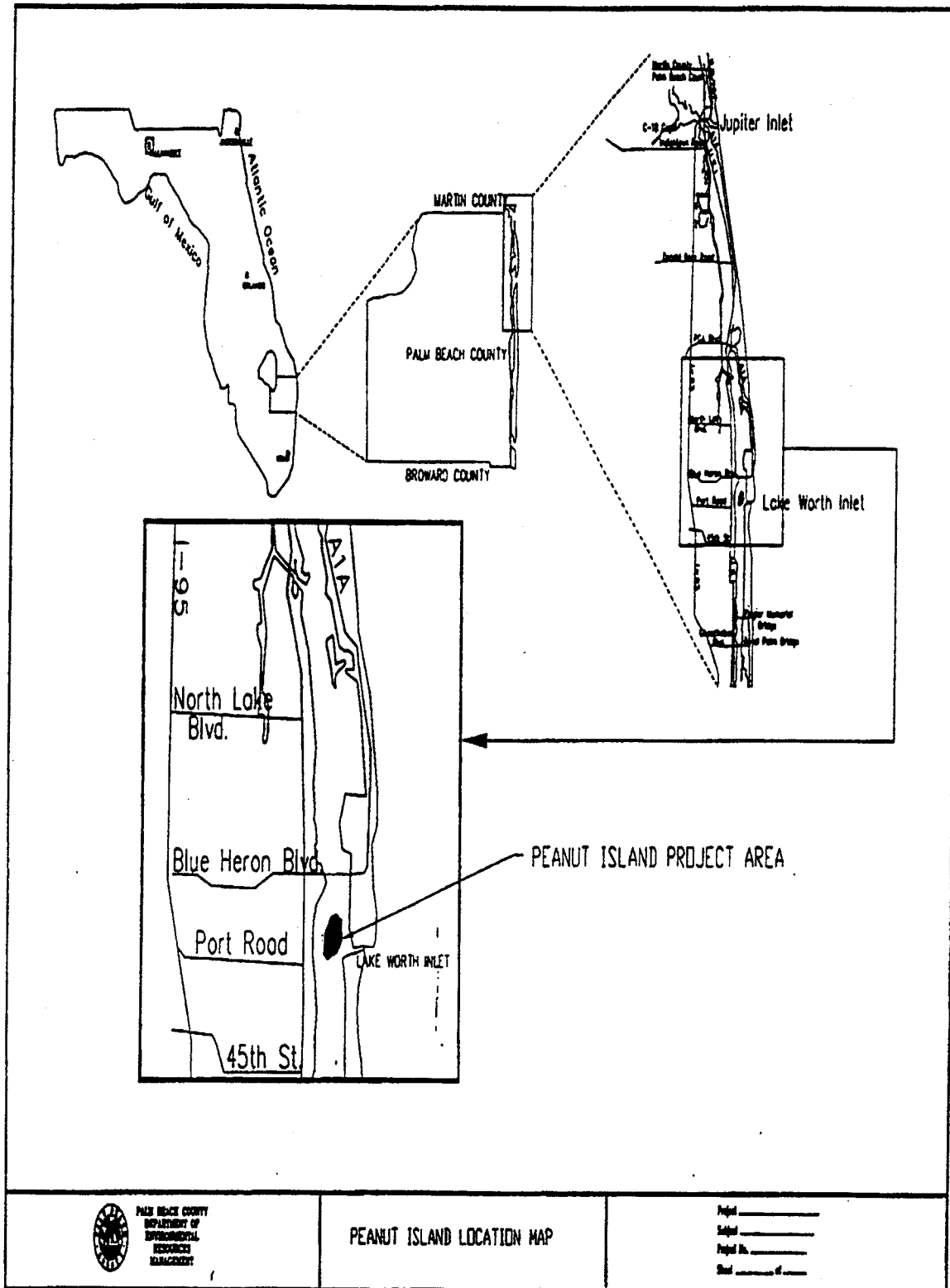
The purpose of this report is to present a recommended plan and the appropriate documentation of compliance with environmental statutes for the environmental restoration of Peanut Island. Recommendations include the creation of wetland and upland habitats on the island and subsequent restoration of dredged areas within the surrounding Lake Worth Lagoon. The restoration of Peanut Island will provide integral habitat for fisheries and wildlife, while interfacing with the island's function as a continued disposal site and recreational area.

The study and recommended alternatives for Peanut Island have concentrated on structural modifications to restore and create wetland and upland habitats on Peanut Island. Environmental benefits will be derived by restoration and creation of these areas, which have been impacted as a result of activities associated with the construction and maintenance of the Lake Worth Inlet and IWW.

**Location**

Peanut Island lies within the north-central Lake Worth Lagoon, Section 34, Township 42 South, Range 43 East, Palm Beach County, Florida (Figure 1). Peanut

**FIGURE 1. PEANUT ISLAND LOCATION MAP**



Island is bordered to the east by the Lake Worth Inlet and to the west by the Intracoastal Waterway and the Port of Palm Beach.

### **Report Participants and Coordination**

The local sponsor, Palm Beach County had the primary responsibility of preparing this document developed through their current environmental restoration initiatives on Peanut Island. The U.S. Army Corps of Engineers, Jacksonville District, was instrumental in providing information for this document. The U.S. Fish and Wildlife Service (USFWS) furnished the Fish and Wildlife Coordination Act Report, which was used to prepare the Environmental Assessment. The Florida Department of Environmental Protection (FDEP) has provided input on existing resources.

The Jacksonville District furnished several federal, state, and local agencies with environmental scoping letters. The purpose of the scoping letter is to identify potential problems concerning policy and the acceptability of the project as early as possible in the planning process. The scoping component is a source of communicating the Corps study with interested persons, and it enables the Corps to receive valuable feedback. Responses to the scoping letters were received and incorporated into the plan formulation process.

The Jacksonville District coordinated the report with the following federal, state, and local agencies:

- U.S. Fish and Wildlife Service
- Florida Department of Environmental Protection
- Florida State Historic Preservation Office
- Advisory Council on Historic Preservation
- Palm Beach County Dept. of Environmental Resources Management
- Palm Beach County Dept. of Parks and Recreation
- Florida Inland Navigation District

### **3. PRIOR STUDIES, REPORTS, AND EXISTING WATER PROJECTS**

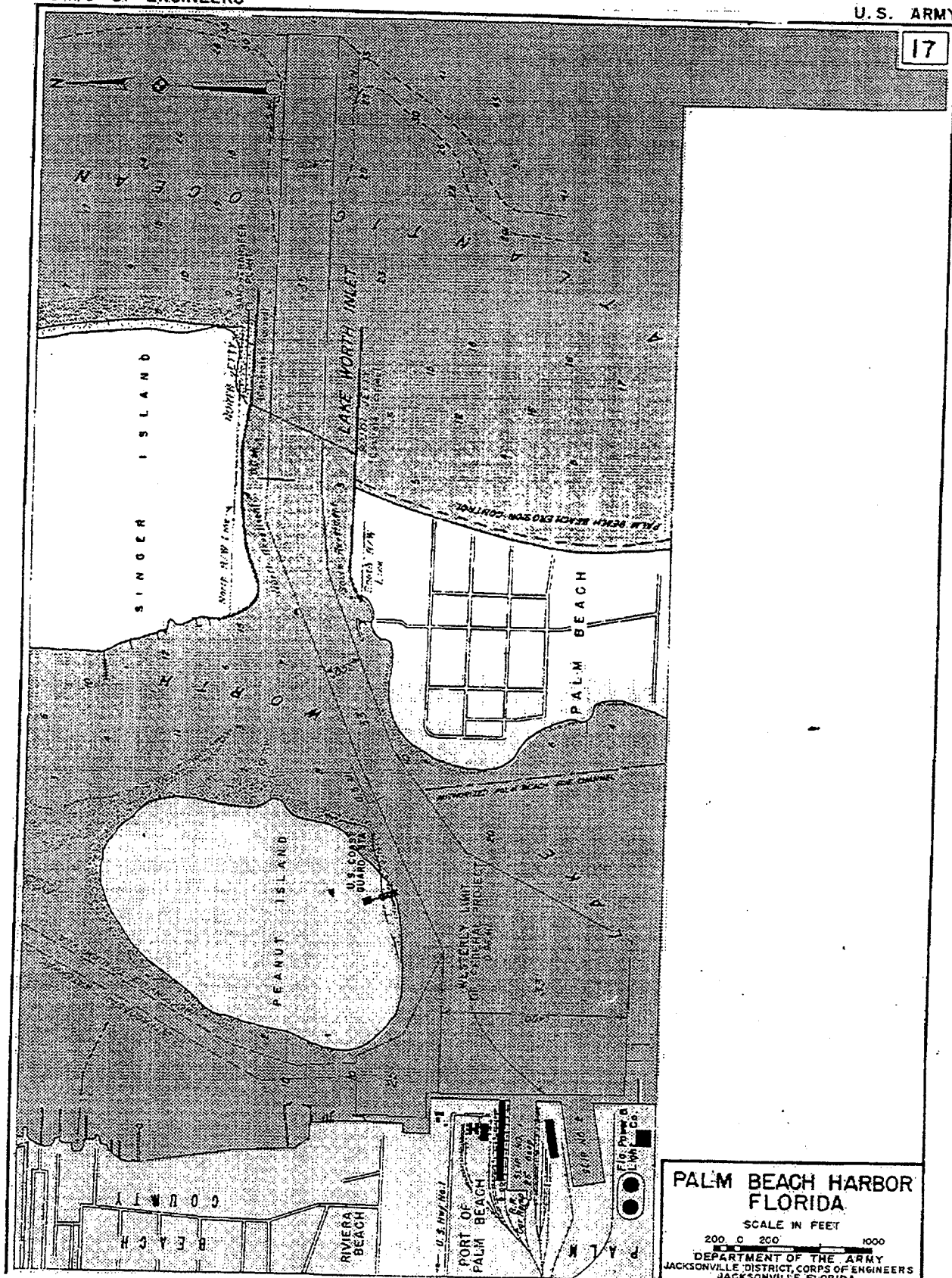
#### **Project Eligibility**

The project is limited to environmental restoration of Peanut Island, which was created by dredged material deposition during the construction and maintenance of the Lake Worth Inlet and the Intracoastal Waterway. Since 1934, the Corps has maintained the Palm Beach Harbor Navigation Project and has used Peanut Island as a disposal site. There are two Federal navigation projects (Figure 2) providing access for water-borne traffic to the Palm Beach Harbor facilities; the Intracoastal Waterway and the Palm Beach Harbor Project (Section 111, Palm Beach Harbor, 1988). These projects are discussed in the following paragraphs.

**FIGURE 2. PALM BEACH HARBOR**  
CORPS OF ENGINEERS

U.S. ARMY

17



**Intracoastal Waterway, Jacksonville to Miami.** Between 1883 and 1912, the Coast Line Canal & Transportation Company, , in a land development navigation improvement agreement with the State, dredged connecting canals between the various sounds and lagoons along the entire east coast of Florida between Jacksonville and Miami, so that a continuous inside waterway was created between these two cities. This series of artificial canals and natural waterways is now known as the Intracoastal Waterway (IWW) from Jacksonville to Miami, Florida, and is maintained as a Federal/State navigation project, utilizing Peanut Island as a disposal site for local IWW work.

**Palm Beach Harbor (Lake Worth Inlet).** At a number of points along the east coast, the continuity of the outer barrier land strip is broken by openings and inlets, connecting the Intracoastal Waterway with the Atlantic Ocean. Palm Beach Harbor (Lake Worth Inlet) is one such inlet. The inlet was initially dredged up to 18 feet deep and 50 feet wide. Later, it was dredged up to 300 feet in width and protected by two jetties, all of which were constructed by local interests between 1918 and 1925. Subsequent Federal improvement of the inlet is shown in Figure 2.

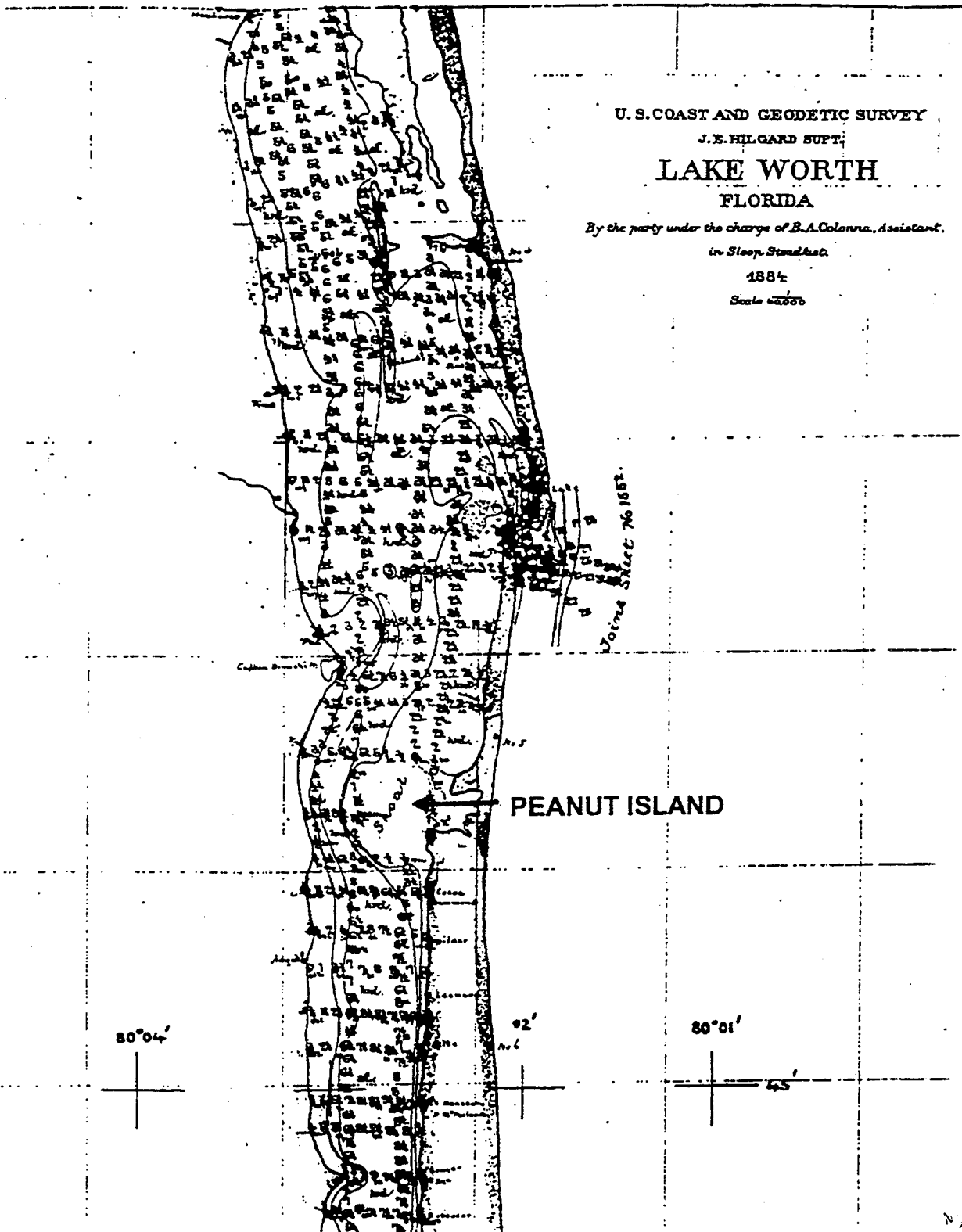
**Beach Renourishment Projects.** In addition to the navigation projects, there is a beach erosion control project in the vicinity of Peanut Island; Palm Beach County from Lake Worth Inlet to South Lake Worth Inlet. The shore protection project for Palm Beach Island was authorized by Public Law 85-500 on July 3, 1958. The project provides for Federal contribution toward the cost of a local shore protection project. The project consists of initial restoration and future nourishment of a protective beach along the ocean shore of Palm Beach Island and construction and operation of a sand transfer plant at Lake Worth Inlet.

**Peanut Island Environmental Restoration.** The Peanut Island environmental restoration will be accomplished on lands owned by the Florida Inland Navigation District and the Port of Palm Beach, which, in part, are leased to Palm Beach County. The modification consists of the removal of exotic vegetation and dredged material deposits to restore and/or enhance wetland and upland habitat on Peanut Island. The Peanut Island Environmental Restoration Project will provide essential wetland and upland habitat for fisheries and wildlife. The project is consistent with Section 1135(b) of the Water Resources Development Act which authorizes the modification of Corps built projects, with the purpose of improving the quality of the environment in the public interest.

## **Project History**

Originally, the area that Peanut Island occupies was a submerged shallow water habitat as illustrated in an 1883 U.S. Coast and Geodetic Survey (Figure 3). As a result of fill placement from numerous dredging projects, the island today comprises 79 acres and has subsequently become dominated by a monoculture of the exotic tree, Australian pine (*Casuarina equisetifolia*). Corps records show that maintenance of the Lake Worth Inlet between 1929 and 1993 has resulted in the disposal of over 1.2 million cubic yards of dredged material on Peanut Island, and the disposal of approximately 2.8 million cubic

FIGURE 3. U.S. COAST AND GEODETIC SURVEY



yards at sea (much of the Peanut Island disposal was sand mixed with rock and/or finer sediments, and therefore, was not suitable for beach disposal). The history of Lake Worth Inlet is well documented by Corps dredge records. Since 1934, the Corps has maintained the Palm Beach Harbor Navigation Project and has used Peanut Island as a disposal site for the maintenance of the IWW, turning basin, jetties and inlet revetments. Figure 4 shows the locations of the dredged material disposal areas that have been used in conjunction with the Palm Beach Harbor Project.

Prior to the creation of a permanent inlet to the sea, Lake Worth was a fresh water lake separated from the Atlantic Ocean by a narrow barrier dune that was occasionally breached by storms, allowing periodic influx of saltwater. Originally, Native Americans, then European and African descendants, periodically dug haulovers and ditches to provide boat access between the lake and the Atlantic Ocean, which were erased by storms. The earliest records of an attempt to create a permanent inlet date from 1877. Railway and resort magnate, Henry Morrison Flagler invested in an enlarged and permanent inlet in 1893, and in 1905 contributed funds toward re-dredging it.

During the 1890's to 1910's, construction of canals and ports opened Florida's fertile farming interior to the rich markets of the northeastern United States and Cuba. Communities along Florida's southeast coast vied to create safe, deep inlets with the aids to navigation and lifesaving facilities necessary to assure shipping safety (U.S.Coast Guard, 1997).

Originally called Inlet Island, Peanut Island was created in 1918 by the placement of dredged material from the excavation of the inlet between Lake Worth Lagoon and the Atlantic Ocean. At that time it amounted to a mere 10 acres. Over the years, ownership of the island changed hands many times, primarily between the State and the Port of Palm Beach. The purchase price rose each time the property changed hands. In 1923, the Port of Palm Beach, then known as the Lake Worth Inlet District acquired the 47.34 acre "Inlet" Island for \$100 per acre; and in 1931, the District purchased an additional 11.48 acres of adjacent submerged lands. When all transactions are taken into account, the Port of Palm Beach paid \$57,883 for Inlet Island. Meanwhile the island continued to grow from additional material as a result of the continued deepening and enlarging of the Port's turning basin and the dredging of the IWW.

In 1926, the Port of Palm Beach retained the world-renowned engineer, General George W. Goethals, to provide the region with a 24 foot deep harbor and enlarged inlet to the Atlantic Ocean. This was the last work of the man made famous as the chief engineer of the Panama Canal (1907-1914), Civil Governor of the Panama Canal Zone (1914-1916), and the builder of the Holland Tunnel.

**FIGURE 4. LOCATION OF PLAM BEACH HARBOR NAVIGATION PROJECT  
DREDGE MATERIAL DISPOSAL AREAS**

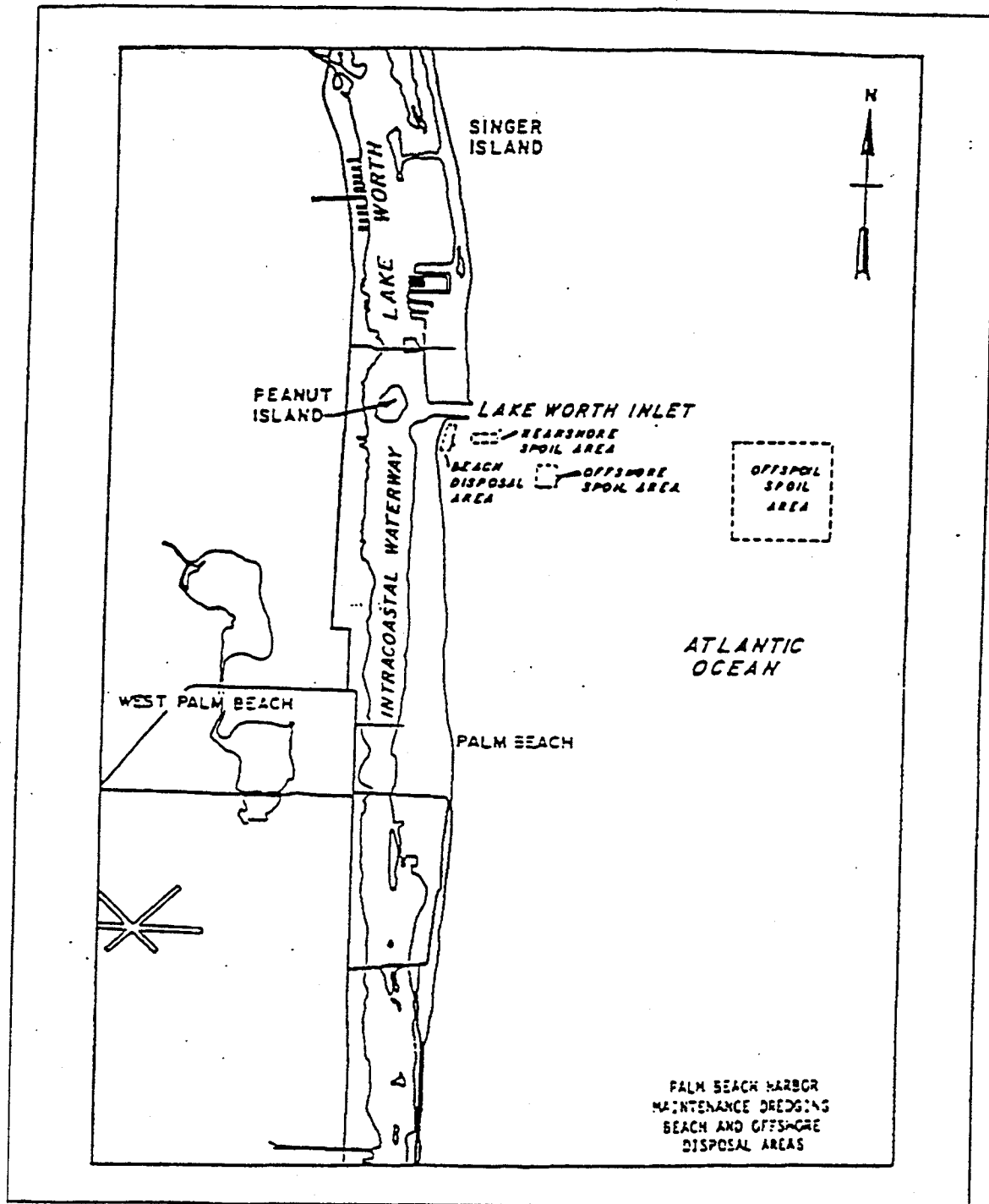


Figure II.2.4 Location of Palm Beach Harbor Navigation Project Dredged Material Disposal Areas (U.S. Army Corps of Engineers, 1988)





Peanut Island was considered a buildable site by 1928 and was selected by the Coast Guard in 1934. Congress authorized the Lake Worth Inlet Station in 1930 and appropriated funding through Public Works in 1935. Requests were made to Congress to fund a station in the vicinity of the inlet "to plug one of the most gaping holes in the coastline of the Country through which liquor has been flowing into the United States on ships coming from the Bahamas and Cuba (Palm Beach Post January 8, 1928). Despite Prohibition, the beaches and resort town of Palm Beach were awash in liquor arriving by fast boat from the Bahamas, only 57 miles east of Palm Beach (U.S. Coast Guard).

The United States Coast Guard's lifesaving station and boathouse, known as the Lake Worth Inlet Station was opened on November 1, 1936 and placed in service in 1937. The 11,980 square foot station was "manned by a crew of 12 whose duties were to patrol the coast in the vicinity of Palm Beach to prevent smuggling and render aid to shipping in distress" (U.S. Coast Guard, 1997). In 1937, Peanut Island had an elevation of 12 feet above mean high tide. The station was built on this plateau on the southeast part of the island, which provided a vantage point, allowing the watchroom a clear view of the horizon in all directions, up to 15 miles away. At the time of construction, it was reported that sparse young Australian pines were scattered around the perimeter of the site. The Station was one of the busiest in Florida until 1995, when the Coast Guard moved to another site on the mainland (U.S. Coast Guard, 1997). The remaining station and boathouse has been restored and incorporated into the Palm Beach Maritime Museum.

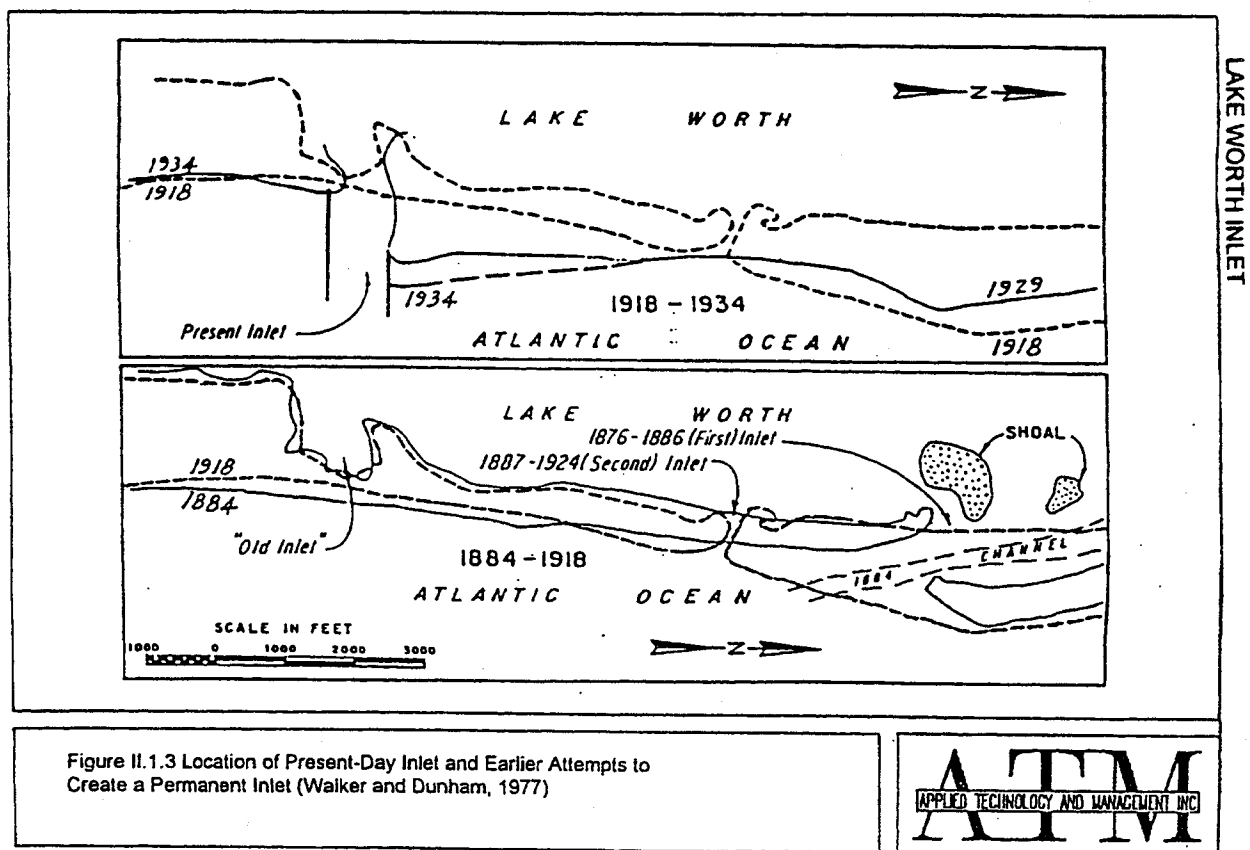
The name "Peanut" was given to the island when the State gave permission to Brown Company to use the island as a terminal for shipping peanut oil. Plans were eventually abandoned in 1946, but the new owners, Port of Palm Beach, kept the name (Palm Beach Post, 1970).

In 1962, with the heightened Cold War tensions of the Cuban Missile Crisis, the Coast Guard Station took on national defense importance, due to its proximity to the Palm Beach vacation home of President John F. Kennedy. Peanut Island was only five minutes by speed-boat from the presidential retreat. The Lake Worth Inlet Station on Peanut Island was the only secure military site suitable for a fallout shelter and command post. The shelter, along with extensive communications facilities, was built in secrecy by the Navy's Seabees, the mobile construction battalions. It was designed and stocked as a command communications center to house the President and 25 to 30 others for up to 30 days. The shelter is a lead lined steel and concrete structure, which is buried in the side of the hill of dredged material on Peanut Island. It contained air filter equipment, a derobing room for disposing of contaminated clothing, a shower and bathroom and a single large room. Although built in 1961 and removed from use in 1964 following the President's assassination, the Federal Government did not acknowledge the existence and purpose of the shelter until 1973. The bunker is currently being restored and preserved for public viewing through the Palm Beach Maritime Museum (U.S. Coast Guard, 1997).

The creation and subsequent enlargement of the channel and jetties at Lake Worth Inlet had a significant impact on adjacent areas. Updrift accretion, downdrift erosion, offshore disposal of littoral sediments and near total removal of flood and ebb shoals have

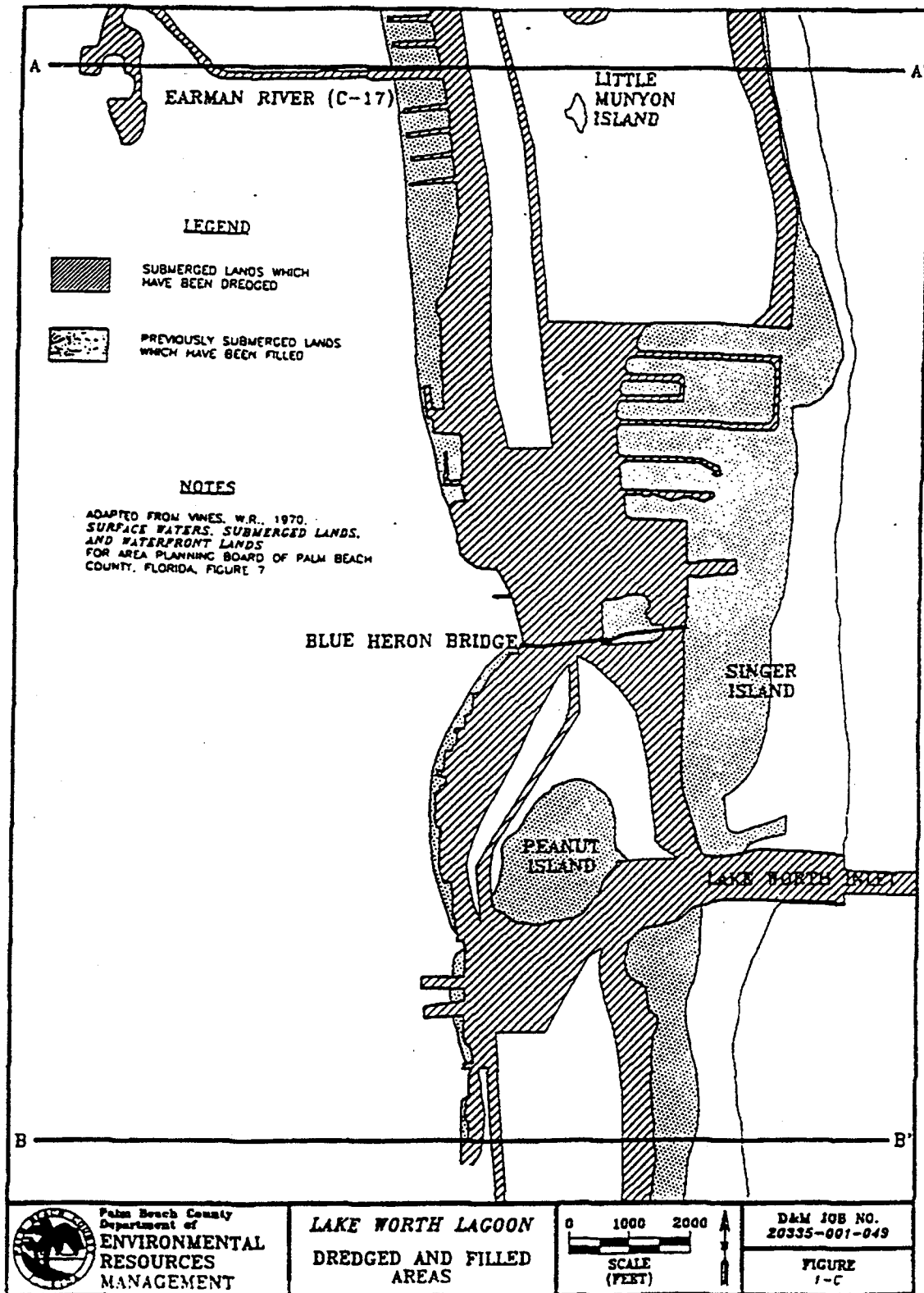
been a result of the navigation works at the inlet (Town of Palm Beach, 1995). Figure 5 shows the shorelines in the immediate vicinity of the Lake Worth Inlet, from 1883 (pre-inlet) to 1968. The shoreline immediately north of the inlet advanced seaward approximately 3,000 feet during the 30-year period following initial inlet and jetty completion. The downdrift shoreline receded approximately 1,200 feet during the same period. The dramatic buildup of sands along the north jetty has necessitated regular maintenance dredging of the inlet and jetties on a schedule of 5-15 years. The entrance channel to the Atlantic Ocean through the Lake Worth Inlet is maintained by the Corps at -35 feet MLW; the interior channel and turning basin are maintained at -33 feet MLW through the Palm Beach Harbor Federal Navigation Project.

**FIGURE 5. LOCATION OF PRESENT-DAY INLET AND EARLIER ATTEMPTS TO CREATE A PERMANENT INLET**



Corps' records show that maintenance of the inlet has resulted in the disposal of over 2.8 million cubic yards of dredged material at sea and 1.2 million cubic yards of dredged material on Peanut Island. Figure 6 illustrates dredged and filled areas in the vicinity of Peanut Island (Dames and Moore, 1990). This map includes previously submerged lands which have been filled and submerged lands which have been dredged. Major changes have not occurred in the past 30 years due to environmental regulations which limit dredging and filling activities.

**FIGURE 6. DREDGED AND FILLED AREAS**



In 1984, Palm Beach County and the Port of Palm Beach entered into an agreement for maintenance of the island, provided it remained a passive recreation area. The Port owned the island until December 1991, when it sold 40 acres on the north end to the Florida Inland Navigation District (FIND) for \$2.2 million. Palm Beach County owns 3.6 acres on the north end of Peanut Island and in 1994, the County entered into lease agreements with the Port and FIND for development of the island's perimeter for the public of Palm Beach County.

#### **4. PLAN FORMULATION**

##### **Existing Conditions**

From 1937 to present, a hill of dredged material to the north and west of the Coast Guard Station on Peanut Island has been continuously fed with sand and silt dredged from the Inlet, Port of Palm Beach and the IWW. Today the densely forested hill of dredged material on Peanut Island rises approximately 40 feet above sea level within the Lake Worth Lagoon (Figure 7).

Peanut Island is located directly inside Lake Worth Lagoon facing Lake Worth Inlet, and is strongly affected by the presence of the inlet with regard to tidal currents, attack from waves propagating through the inlet, and large water-surface elevation variations due to storm surges. The island has experienced erosion, primarily along the southeastern corner, which has experienced moderate to severe erosion due to surges and wave action. According to the Coastal Systems International (CSI), the resulting scarps on the southeastern corner have an average height of approximately 4.0 feet.

Significant changes in the horizontal position of the Peanut Island shoreline were noted by CSI from examination of aerial photos of the island taken between 1968 and 1993. The photos indicate that the southeast corner of the island has experienced a consistent shoreline retreat of approximately 100 feet between the years 1968 and 1993. The aeriels show both shoreline retreat and advancement on the west side of the island. Specifically, between the years 1968 and 1977, the shoreline near the west project site advanced (accreted) approximately 100 feet, while the same reach of shoreline exhibited a retreat of approximately 50 feet between 1977 and 1993 (CSI Report). These changes indicate that the island is located in a highly dynamic area and is exposed to many coastal processes that will need to be addressed in the project design.

The island is currently dominated by exotic vegetation, primarily Australian pine and Brazilian pepper, which have created an impenetrable thicket, so concentrated that the majority of the island is inaccessible (Figure 8). An isolated mangrove forest (3.0 acres) exists on the west side of the island, which is impounded by a sand berm and only flushes at spring high tides.